

Abstract

A concave mirror substrate 1 constituting a reflector is composed of a base material having a high thermal conductivity such as aluminum etc. An infrared-to-heat converting layer 2 is film-formed by anodizing the substrate formed of aluminum etc., so as to absorb light in a wavelength range which passes through a visible light reflecting layer 4 and convert it into heat. A gloss-forming buffer layer 3 is film-formed by calcining Si resin or polyimide resin over the inner side (the light source-side surface) of infrared-to-heat converting layer 2 at high temperatures, so as to buffer the two layers in a manner that does not allow infrared-to-heat converting layer 2 and visible light reflecting layer 4 to be in direct contact with each other, and so as to reduce the influence of projections and indentations present on infrared-to-heat converting layer 2 and smoothen the light source-side surface of visible light reflecting layer 4.

In this way, it is possible to suppress performance degradation by efficient discharge of heat by converting light into heat and by alleviating thermal stress and strain due to the difference in expansion coefficient between components, and it is also possible to achieve reduction in cost, miniaturization and weight reduction.